REMARKS

The following remarks are in response to an action mailed August 29, 2002.

To expedite prosecution, applicant has cancelled claims 6, 10, and 18, and amended claims 1-3, 5, 7-9, 11, 12, and 37. Applicant reserves the right to further pursue these claims as originally filed in a continuing application.

The Examiner's rejection states:

> Applicant's arguments filed 06/21/02 have been fully considered but they are not persuasive. In response to the Applicant's argument that the Examiner has improperly applied the 35 U.S.C. 112 second paragraph in paper 8, the Applicant has misinterpreted the principle that claims are interpreted in light of the specification. *Although the elements claimed may be found as examples or embodiments in the specification, they were not claimed explicitly.* Nor were the words that are used in the claims defined in the specification to require these limitations. A reading of the specification provides no evidence to indicate that these limitations must be imported into the claims to give meaning to disputed terms. *Constant v. Advanced Micro-Devices Inc.*, 7 USPQ2d 1064.

Contrary to the Examiner's assertion, 35 U.S.C. 112, second paragraph, does not require that the "examples or embodiments in the specification" be "claimed explicitly" to render the claims definite.

35 U.S.C. 112, second paragraph states:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

MPEP 2171 states, in regard to 35 U.S.C. 112, second paragraph:

> There are two separate requirements set forth in this paragraph:
> (A) the claims must set forth the subject matter that the applicants regard as their invention; and
> (B) the claims must particularly point out and distinctly define the metes and bounds of the subject matter that will be protected by the patent grant.
>
> The first requirement is a subjective one because it is dependent on what the applicants for a patent regard as their invention. The second requirement is an objective one because it is not dependent on the views of the applicant or any particular individual, but is evaluated in the context of whether the claim is definite – i.e. whether the scope of the claim is clear to a hypothetical person possessing the ordinary skill in the pertinent art.

Thus, 35 U.S.C. 112, second paragraph, requires that the "claims read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, 112 demands no more..." *Miles laboratories, Inc. v. Shandon Inc., 27 USPQ2d 1123 (Fed. Cir.*

1993). See also, e.g., *Personalized Media Communications, LLC v. U.S. Int'l Trade Comm'n, 48 USPQ2d 1880 (Fed. Cir. 1998).*

The Examiner is referred to 35 U.S.C. 112, first paragraph, which requires that the written description enable a person skilled in the art to make and use the invention.[1] Thus, it is the written description, not the claims, that provides a routineer in the art with the information to employ the method or make the device.

The Examiner has rejected claims 1, 2, 5, 7, 8, 9, 11 and 12 under 35 U.S.C. 112, second paragraph as indefinite, stating:

> In claims 1, 2, 5, 7, 8, 9, 11 and 12 a description of the electrical circuit in the claim is essential. The effect of these claims, that being to achieve "a peak voltage experienced by the transducer" as being "greater than two times higher than any peak voltage of an open circuit due to the disturbance alone" is only dependent on the coupling alone. So the coupling of an electric circuit, not apparently the circuit itself, comprised of no listed parts in some claims, and few in others, connected or otherwise, is intended to ensure the stated goal. This description is indefinite and it fails to distinctly claim the subject matter which the applicant regards as the invention. [emphasis added]

While applicant traverses the Examiner's assertion that "a description of the electrical circuit in the claim is essential," to expedite prosecution, applicant has amended claims 1, 2, 5, 7, 8, 9, 11 and 12 to recite that the electrical circuit is configured to achieve the recited effect.

The Examiner has rejected claims 3, 4, 13, 17, 15, 16, 19 and 20 under 35 U.S.C. 112, second paragraph as indefinite, stating:

> Claims 3 and 4 note controlling an electric circuit based on a measured mechanical state. It is never explicit in the claim language just what the mechanical state refers to. The mechanical state of what? What kind of mechanical state? How is the circuit controlled? The language here is so broad that the metes and bounds appear nearly open-ended, as a result these claims are indefinite. As noted in paper 8, there is no methodology in the claims to indicate how the anything claimed is achieved.
>
> Claims 13 and 17 are very confusing embodiments with a description which has not been found in any figure. As claimed, two switches are connected in parallel and each is connected to the second terminus of both the transducer and the inductor. Further a storage element is connected to these switches somehow and simply left hanging there.
>
> Claims 15 and 16 are very broad. It appears that the electric circuit which may be powered by the extracted power or the independent power consists of only one component, that being a switch, which switch apparently performs no function but is merely placed across the transducer. Such a structure would not allow any extracted power to be saved, when the switch is closed every terminal in the structure would be at the same voltage potential. A structure so described is indefinite.
>
> Claims 19 and 20 are broader than claims 15 and 16 and describe not even the switch of claims 15 and 16.

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[1] 35 U.S.C. 112, first paragraph: The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

While applicant traverses the Examiner's rejection, to expedite prosecution, applicant has amended claim 3 to recite that the mechanical state is a mechanical state of the disturbance. We note that claim 4 does not contain the language at issue.

Regarding claims 13 and 17, the Examiner is directed to, e.g., FIG. 19, and page 24, line 26 to page 25, line 5.

Regarding claims 15 and 16, there is no requirement that the claims recite every element of the system.

Regarding claims 19 and 20, stating that a claim is broad is not a proper rejection.

The Examiner has rejected claims 21-53 under 35 U.S.C. 112, second paragraph as indefinite, stating:

> Claims 21-53 are likewise indefinite. Claim 21 merely recites an open-ended list of parts, which list is described in the broadest terms such that it is indefinite. Connections too are not explict. In claim 25 it is not clear whether the switches are a part of the electrical circuit or that the electrical circuit is the control circuit of the switches. Claim 37 does not indicate that the transducer is meant to only provide power. While it is claimed that the "transducer...converts mechanical power to electrical power" the claim goes on to note in the next paragraph that "all electrical power supplied to the transducer is derived from power extracted from the mechanical disturbance." What the invention of this claim is intended to do is thus unknown. There are again no metes or bounds to what the electrical circuit actually is.

Regarding claim 21, claim 21 does not recite an "open-ended list of parts" but rather interoperable and interdependent elements. Furthermore, a claim is not indefinite merely because it is broad.

Regarding claim 25, there is no requirement that the claimed method step provide the level of specificity the Examiner is seeking.

Regarding claim 37, there is no requirement that the "metes and bounds" of the electrical circuit be claimed. Furthermore, claim 37 has been amended to clarify that the transducer is configured for coupling to a mechanical disturbance.

The Examiner has rejected claim 14 as obvious over Jidosha.

The Examiner's rejection states:

> Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jidosha (JP11-341837). Given the invention of Jidosha as noted above, it is not clear that he controls his switch such that it is switched at a frequency greater than two times an excitation frequency of the disturbance. It would have been obvious to one having ordinary skill in the art at the time the invention was made to so drive the switch of Jidosha since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2e 272, 205 USPQ 215 (CCPA 1980).

Claim 14 is patentable over Jidosha.

Jidosha does not describe or suggest at least the claimed "control logic which switches the switching electronics at a frequency *greater than two times* an excitation frequency of the disturbance" (emphasis added).

In Jidosha, transistor T1 is controlled by the piezoelectric voltage of transducer P via the rectifier 40, diode D2, and resistor R1. Because the piezoelectric voltage of transducer P oscillates at a frequency that is equal to or less than the excitation frequency of the disturbance, the highest switching frequency of the transistor T1 is two times the excitation frequency of the disturbance (because of the inclusion of the full wave rectifier). Accordingly, the transistor T1 does not switch "at a frequency *greater than two times* an excitation frequency of the disturbance," as recited in claim 14. Merely varying the parameters associated with transistor T1, transducer P, diode D2, resistor R1, and rectifier 40 will not drive the transistor T1 to switch at this "optimum value."

Therefore, Applicants submit that claim 14 is patentable over Jidosha for at least the reason discussed above.

Attached is a marked-up version of the changes being made by the current amendment.

Applicant asks that all claims be allowed. Enclosed is a check for the Petition for Extension of Time fee. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

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Version with markings to show changes made

In the claims:

Claims 6, 10, and 18 have been cancelled.

Claim 1-3, 5, 7-9, 11, 12, and 37 have been amended as follows:

1. (Amended) A method of extracting power, comprising the steps of:

coupling a transducer that converts mechanical power to electrical power to a disturbance,

coupling an electrical circuit to the transducer, the electrical circuit being configured such that a peak voltage experienced by the transducer is greater than two times higher than any peak voltage of an open circuit transducer due to the disturbance alone,

extracting power from the transducer using the electrical circuit,

storing extracted power, and

powering the electrical circuit with power extracted from the disturbance.

2. (Amended) A method of extracting power, comprising the steps of:

coupling a transducer that converts mechanical power to electrical power to a disturbance,

coupling an electrical circuit to the transducer, the electrical circuit being configured such that a peak of the integral of the current onto and off the transducer is greater than two times higher than any peak of an integral of a current of a short circuit transducer due to the disturbance alone,

extracting power from the transducer using the electrical circuit,

storing extracted power, and

powering the electrical circuit with power extracted from the disturbance.

3. (Amended) A method of extracting power, comprising the steps of:

coupling a transducer that converts mechanical power to electrical power to a disturbance,

measuring a mechanical state of the disturbance with a sensor,

controlling an electrical circuit coupled to the transducer based on the measured mechanical state,

extracting power from the transducer using the electrical circuit,

storing extracted power, and

powering the electrical circuit with power extracted from the disturbance.

5. (Twice Amended) A system for extracting power, comprising:

a transducer that converts mechanical power to electrical power, the transducer configured for coupling to a disturbance,

an electrical circuit connected across the transducer, the electrical circuit being configured such that a peak voltage experienced by the transducer is greater than two times higher than any peak voltage of an open circuit transducer due to the disturbance alone, the electrical circuit including

an inductor including first and second terminals, the first terminal being connected to a first terminal of the transducer,

a first subcircuit connected to the second terminal of the inductor and a second terminal of the transducer, the first subcircuit including a switch, and

a second subcircuit connected to the second terminal of the inductor and the second terminal of the transducer, the second subcircuit including a switch, and

a storage element connected to the electrical circuit for storing extracted power.

7. (Amended) A system for extracting power, comprising:

a transducer that converts mechanical power to electrical power, the transducer configured for coupling to a disturbance,

an electrical circuit connected across the transducer, the electrical circuit being configured such that a peak voltage experienced by the transducer is greater than two times higher than any peak voltage of an open circuit transducer due to the disturbance alone, and

a storage element for storing extracted power, the storage element and the electrical circuit being connected such that the storage element supplies power to the electrical circuit.

8. (Twice Amended) A system for extracting power, comprising:

a transducer that converts mechanical power to electrical power, the transducer configured for coupling to a disturbance,

an electrical circuit connected across the transducer, the electrical circuit being configured such that a peak voltage experienced by the transducer is greater than two times higher than any peak voltage of an open circuit transducer due to the disturbance alone,

a storage element connected to the electrical circuit for storing extracted power, and

an independent power source for supplying power to the electrical circuit.

9. (Twice Amended) A system for extracting power, comprising:

a transducer that converts mechanical power to electrical power, the transducer configured for coupling to a disturbance, and

an electrical circuit connected across the transducer, the electrical circuit being configured such that a peak of the integral of the current onto and off the transducer is greater than two times higher than any peak of an integral of a current of a short circuit transducer due to the disturbance alone, the electrical circuit including

an inductor including first and second terminals, the first terminal being connected to a first terminal of the transducer,

a first subcircuit connected to the second terminal of the inductor and a second terminal of the transducer, the first subcircuit including a switch, and

a second subcircuit connected to the second terminal of the inductor and the second terminal of the transducer, the second subcircuit including a switch, and

a storage element connected to the electrical circuit for storing extracted power.

11. (Amended) A system for extracting power, comprising:

a transducer that converts mechanical power to electrical power, the transducer configured for coupling to a disturbance, and

an electrical circuit connected across the transducer, the electrical circuit being configured such that a peak of the integral of the current onto and off the transducer is greater than two times higher than any peak of an integral of a current of a short circuit transducer due to the disturbance alone, and

a storage element for storing extracted power, the storage element and the electrical circuit being connected such that the storage element supplies power to the electrical circuit.

12. (Twice Amended) A system for extracting power, comprising:

a transducer that converts mechanical power to electrical power, the transducer configured for coupling to a disturbance, and

an electrical circuit connected across the transducer, the electrical circuit being configured such that a peak of the integral of the current onto and off the transducer is greater than two times higher than any peak of an integral of a current of a short circuit transducer due to the disturbance alone,

a storage element connected to the electrical circuit for storing extracted power, and

an independent power source for supplying power to the electrical circuit.

37. (Amended) A system, comprising:

a transducer that converts mechanical power to electrical power, the transducer configured for coupling to a mechanical disturbance, and

an electrical circuit connected across the transducer, the electrical circuit containing active switches such that all electrical power supplied to the transducer is derived from power extracted from the mechanical disturbance.